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VENABLE LLP P.O. BOX 34385 WASHINGTON, DC 20043-9998			EXAMINER JOHNSON, MATTHEW A	
			ART UNIT	PAPER NUMBER
			3656	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/520,919

**Applicant(s)**

HELDESJO ET AL.

**Examiner**

MATTHEW A. JOHNSON

**Art Unit**

3656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 1/11/2005
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's arguments with respect to the Restriction requirement are found to be persuasive. Accordingly, the requirement for restriction has been withdrawn and claims 1-20 will be examined.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re clms 1 and 15: The limitation, "an optional number of stop elements on the first part in a row one after the other and making contact with one another" is unclear rendering the claim indefinite. The phrase, "an optional number" includes zero or one stop element, and it is unclear how the stop elements contact each other if there isn't more than one stop element. As written, the phrase "optional number" makes it unclear if the additional stop elements are a requirement of the claim. Additionally, claim 1 recites the limitations, "a set of stop elements", "an optional number of stop elements" and "mutual connection of stop elements". It is unclear if Applicant is referring to the same stop elements throughout the claim.

Re clm 1: Claim 1 recites the limitation "the first part" in line 2. There is insufficient antecedent basis for this limitation in the claim. Additionally, regarding the phrase "connected to the first part" in line 3, it is unclear which element Applicant is referring to. Is it the device that is connected to the first part? Or is Applicant referring to the second part being connected to the first part?

Re clms 2-4: Claims 2-4 recite the limitation "said connecting members" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Re clm 3: The phrase "tooth-like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Re clms 3 and 4: Claims 3 and 4 recite the limitation "the essentially tangentially directed surfaces/ends" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim. Additionally, regarding the limitation "when a row is formed" in claims 3 and 4, it is unclear whether or not the described event occurs, when it may occur or what causes the event to occur.

Re clm 4: Regarding the limitation, "adapted to be inserted into these" it is unclear what the term "these" is referring to.

Re clm 5: Claim 5 recites the limitation "the arm" in line 3. There is insufficient antecedent basis for this limitation in the claim. Additionally, claim 5 recites the limitation, "adapted to be inserted through a first and a second hole" in the last two lines of the claim. It is unclear if Applicant is referring to the same first and second holes previously claimed in claim 5.

Re clm 7: The term "considerably" in claim 7 is a relative term which renders the claim indefinite. The term "considerably" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. What constitutes a "considerably different length"?

Re clms 9, 10 and 17-20: Regarding the phrase "a said angle", it is unclear if Applicant is referring to an angle previously claimed or if Applicant is claiming an additional angle.

Re clms 13 and 14: Regarding the phrase, "it is designed for" it is unclear what the term "it" is referring to. Additionally, claim 13 recites the limitation "first and second parts" it is unclear if Applicant is referring the first and second parts already claimed in claim 1. Further, regarding the limitation "an industrial robot" in the last line, an industrial robot has already been recited in the preamble of claim 1.

#### ***Claim Objections***

4. Claims 3 and 4 are objected to because of the following informalities: the phrase "essentially tangentially" is grammatically awkward. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-6 and 11-16, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Iwai et al. (USP-3,777,618).

Re clms 1 and 15: Iwai discloses a device for restricting the working range around an axis of an industrial robot in the form of restriction of the maximum angle for rotation of a first part (35) of the robot relative to a second part (54) thereof, connected to the first part, wherein the robot comprises a fixed stop (81) arranged at the second part, wherein the device comprises a set of stop elements (82, 82a) and means (86, 83; C5 L8-11) for fixing an optional number of stop elements on the first part in a row one after the other and making contact with one another along a circular arc around the axis of rotation of the first part (the stop elements are capable of being fixed in a row one after another such that they contact, C4 L46-49), in order to hit against the stop with those end surfaces of the stop elements which are located on opposite ends of the row, when rotating the first part relative to the second part, thus forming opposite end positions for this rotation, wherein the device comprises members (84 and teeth on 82) for such a mutual connection of stop elements arranged adjacent to each other in said row that these elements, with respect to the transmission of forces between them and the stop, when hitting against the latter upon said rotation, essentially behave as if they together were one single coherent stop element (the device is capable of performing the recited function).

Re clms 2 and 16: Iwai discloses said connecting members (84 and teeth on 82) are adapted, when forming said row, to achieve mechanical interlocking (via teeth) between adjacent stop elements.

Re clm 3: Iwai discloses said connecting members comprise tooth-like projections on the essentially tangentially directed surfaces of the stop elements (Figs. 2 and 3, C4 L53-55), when a row has been formed, and recesses (recesses in between the teeth) corresponding thereto on corresponding surfaces of adjacent stop elements.

Re clm 4: Iwai discloses the connecting members comprise, at the essentially tangentially directed ends of the stop elements, when a row has been formed, essentially axially extending grooves (grooves between the teeth, Figs. 2 and 3) and projections (teeth of 84) fitting therein and adapted to be inserted into these.

Re clm 5: Iwai discloses said fixing means comprise first holes (holes in 83) distributed around the axis of rotation of the arm (Figs. 2 and 3) in said first part and second holes arranged in the stop elements (Fig. 3), as well as elongated rod-shaped pieces (86) which are each adapted to be inserted through a first and a second hole for fixing the respective stop element to the first part.

Re clm 6: Iwai discloses said pieces are bolts designed for screwing the stop elements to said first part (Fig. 3).

Re clm 11: Iwai discloses the stop elements are formed from blocks having essentially the shape of truncated sectors of a circle (Fig. 2).

Re clm 12: Iwai discloses said means are adapted to fix the stop elements to an arm of an industrial robot (see Abstract).

Re clms 13 and 14: The examiner notes that the limitation of claims 13 and 14 is an intended use statement, and the device of Iwai is capable of being designed for application to a rotary joint between first and second parts in the form of two arms of an industrial robot as well as a stand and a robot foot as shown.

7. Claims 1, 5, 6 and 11-15, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Uozumi (JP-401210289A).

Re clms 1 and 15: Uozumi discloses a device for restricting the working range around an axis of an industrial robot in the form of restriction of the maximum angle for rotation of a first part (9) of the robot relative to a second part (7a) thereof, connected to the first part, wherein the robot comprises a fixed stop (8) arranged at the second part (Fig. 1), wherein the device comprises a set of stop elements (10, Figs. 2 and 3) and means (13, 17) for fixing an optional number of stop elements on the first part in a row one after the other and making contact with one another along a circular arc around the axis of rotation of the first part (the stop elements are capable of being fixed in a row one after another such that they contact, see Figs. 2 and 3), in order to hit against the stop with those end surfaces of the stop elements which are located on opposite ends of the row, when rotating the first part relative to the second part, thus forming opposite end positions for this rotation, wherein the device comprises members (end of 10 that



rides in groove 13) for such a mutual connection of stop elements arranged adjacent to each other in said row that these elements, with respect to the transmission of forces between them and the stop, when hitting against the latter upon said rotation, essentially behave as if they together were one single coherent stop element (the device is capable of performing the recited function).

Re clm 5: Uozumi discloses said fixing means comprise first holes (holes in 13, Fig. 7) distributed around the axis of rotation of the arm (Figs. 2 and 3) in said first part and second holes arranged in the stop elements (Fig. 7), as well as elongated rod-shaped pieces (17) which are each adapted to be inserted through a first and a second hole for fixing the respective stop element to the first part.

Re clm 6: Uozumi discloses said pieces are bolts designed for screwing the stop elements to said first part (Fig. 7).

Re clm 11: Uozumi discloses the stop elements are formed from blocks having essentially the shape of truncated sectors of a circle (Figs. 2 and 3).

Re clm 12: Uozumi discloses said means are adapted to fix the stop elements to an arm of an industrial robot (Fig. 8).

Re clms 13 and 14: The examiner notes that the limitation of claims 13 and 14 is an intended use statement, and the device of Uozumi is capable of being designed for application to a rotary joint between first and second parts in the form of two arms of an industrial robot as well as a stand and a robot foot.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 7-10 and 17-20, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwai et al. (USP-3,777,618) in view of Weglarz (USP-2,840,651).

Re clms 7 and 8: Iwai discloses all of claimed subject matter as described above.

Iwai discloses the claimed invention except for the set of stop elements comprises stop elements of mutually considerably different lengths with respect to the angle through which they are intended to extend along said circular arc. It would have been an obvious matter of design choice to provide a set of stop elements of considerably different lengths, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art.

Additionally, Weglarz teaches a device comprising a set of stop elements (45) of considerably different lengths with respect to the angle through which they are intended to extend along a circular arc (C3 L8-11), for the purpose of providing flexibility in the adjustment of the stops (C3 L39-46).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have included in the device of Iwai a set of stop elements of

considerably different lengths with respect to the angle through which they are intended to extend along a circular arc, as taught by Weglarz, for the purpose of providing flexibility in the adjustment of the stops (C3 L39-46).

Re clms 9-10 and 17-20: Iwai discloses the claimed invention except for the stop elements having angles within the claimed ranges. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided stop elements having angles within the claimed ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering optimum or workable range involves only routine skill in the art.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW A. JOHNSON whose telephone number is (571)272-7944. The examiner can normally be reached on Monday - Friday 9:00a.m. - 5:30p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW A JOHNSON/  
Examiner, Art Unit 3656

/Richard WL Ridley/  
Supervisory Patent Examiner, Art Unit 3656

